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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/695,530	10/27/2003	Erling Jim Andersen	23202	6412

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EXAMINER	
WARTALOWICZ, PAUL A	

ART UNIT	PAPER NUMBER
1754	

DATE MAILED: 05/04/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/695,530	ANDERSEN, ERLING JIM	
	Examiner	Art Unit	
	Paul A. Wartalowicz	1754	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 February 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1 and 2* is/are pending in the application.

4a) Of the above claim(s) *3-7* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-2* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *27 October 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

Applicant's arguments filed on February 16, 2006 have been fully considered but they are not persuasive.

Applicant argues that the Stockburger reference does not disclose a catalytic reaction wherein sodium hydroxide is a catalyst and is not consumed in the reaction, that the sodium hydroxide is consumed to form $NaAL(OH)_4$, and an assumption is made that some of it can be regenerated by precipitation in another part of the process.

This argument is not persuasive for the following reason: The process in the claimed invention is the same as in Stockburger such that any attributes given to the process in the claimed invention such as "wherein sodium hydroxide is a catalyst and is not chemically consumed therein" must necessarily be attributed to the same process being carried out in Stockburger such as wherein Stockburger et al. teach a method for carrying energy from one location to another (mobile fuel source, page 432, lines 36-38) comprising obtaining aluminum metal from a first location (shredded can scrap and chopped aluminum wire, page 434, lines 3-6), reacting said aluminum metal with water and sodium hydroxide in a catalytic reaction, thereby splitting said water into hydrogen, oxygen and forming aluminum hydroxide (page 434, lines 32-41) wherein aluminum hydroxide can be 100% recycled back to aluminum (page 432, lines 33-36). This teaching in Stockburger inherently teaches the limitation "wherein sodium hydroxide is a catalyst and is not chemically consumed therein".

Applicant argues that the statement "precipitation of $Al(OH)_3$ is desirable as it regenerates Na(OH) which implies that less than the stoichiometric amount of Na(OH) has to be stored in the hydrogen generator system" suggests that at least some of the Na(OH) is not regenerated in the reaction.

This argument is not persuasive for the following reason: The process of the claimed invention is the same as the process of Stockburger et al. such that the concentration used in the experiments in Stockburger et al. such as 5.75 M (page 436, last line) is the same as in the process of the claimed invention and Stockburger et al. teach wherein the experiments are carried out a fixed volume of Na(OH) (page 433, lines 17-20).

Applicant argues that Stockburger et al. teaches that, during the bench scale experiment, there was no precipitation and consequently no regeneration of Na(OH).

This argument is not persuasive for the following reason: This observation only describes a specific set of experiment conditions such as where freshly made Na(OH) was made (page 436, lines 1-3). Precipitation was observed where a pre-saturated /seeded alkaline solution was used (page 436, lines 10-12).

Applicant argues that Stockburger et al. teaches that a "continuous process requires that there be a continuous supply of reactants" and that if Na(OH) was a catalyst which is not consumed, there would be no need for a Na(OH) makeup pump and flow-control valve.

This argument is not persuasive for the following reason: The process of the claimed invention is the same as the process of Stockburger et al. such that the concentration used in the experiments in Stockburger et al. such as 5.75 M (page 436, last line) is the same as in the process of the claimed invention and Stockburger et al. teach wherein the experiments are carried out a fixed volume of Na(OH) (page 433, lines 17-20). The need for an Na(OH) makeup pump and flow control valve is most likely for the purpose of maintaining the proportion of Na(OH) in the reaction as the flow rate of aluminum is changed as in the test experiments (page 439, summary of test results).

Applicant argues that there is nothing in the entire document to lead one to find an association of formulas 2 and 3 with actual experimental results.

This argument is not persuasive for the following reason: Stockburger et al. state that the reaction of aluminum in an alkaline solution and the subsequent precipitation of $Al(OH)_3$ are described by equations 2 and 3 respectively:

$2Al + 2Na(OH) + 6H_2O = 2NaAl(OH)_4 + 3H_2$

$2NaAl(OH)_4 = 2Na(OH) + 2Al(OH)_3$

(page 434, lines 30-40)

Precipitation of $Al(OH)_3$ observed where a pre-saturated /seeded alkaline solution was used (page 436, lines 10-12). This is the link between formulas 2 and 3 and the experiments in Stockburger et al.

Applicant argues that the entire portion of the document (pages 435-444) suggests that there was absolutely no regeneration of sodium hydroxide.

This argument is not persuasive for the following reason: This portion of the document is silent as to the regeneration of Na(OH), this is not evidence that this portion of the document suggests that there was absolutely no regeneration of sodium hydroxide. Precipitation of $Al(OH)_3$ observed where a pre-saturated /seeded alkaline solution was used (page 436, lines 10-12); this teaching is in accordance with formulas 2 and 3 wherein Na(OH) is regenerated.

Applicant argues that the formulas 2 and 3 in the first part of the Stockburger reference and the associated discussion constitute a hypothetical statement which does not meet the test of enablement required to make it applicable against Applicant's claim 1.

This argument is not persuasive for the following reason: Stockburger et al. state that the reaction of aluminum in an alkaline solution and the subsequent precipitation of $Al(OH)_3$ are described by equations 2 and 3 respectively:

$2Al + 2Na(OH) + 6H_2O = 2NaAl(OH)_4 + 3H_2$

$2NaAl(OH)_4 = 2Na(OH) + 2Al(OH)_3$

(page 434, lines 30-40)

Precipitation of $Al(OH)_3$ observed where a pre-saturated /seeded alkaline solution was used (page 436, lines 10-12). This is the link between formulas 2 and 3 and the

experiments in Stockburger et al. These teachings by Stockburger et al. meet the test of enablement requirement to make it applicable against Applicant's claim 1.

Repeated Rejections

The 35 U.S.C. 102 rejections as stated in Office Action January 10, 2006 are repeated.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1 and 2 are rejected under 35 U.S.C. 102(b) as being anticipated by Stockburger et al. ("On-line Hydrogen Generation from Aluminum in an Alkaline Solution". Proc.-Electrochem. Soc. (1992), 92-5(Proc. Symp. Hydrogen Storage Mater., Batteries, Electrochem., 1991), 431-44, 1992, XP-001032928).

Stockburger et al. teach a method for carrying energy from one location to another (mobile fuel source, page 432, lines 36-38) comprising obtaining aluminum metal from a first location (shredded can scrap and chopped aluminum wire, page 434, lines 3-6), reacting said aluminum metal with water and sodium hydroxide in a catalytic reaction, thereby splitting said water into hydrogen, oxygen and forming aluminum hydroxide (page 434, lines 32-41) wherein aluminum hydroxide can be 100% recycled back to aluminum (page 432, lines 33-36).

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Paul A. Wartalowicz whose telephone number is (571) 272-5957. The examiner can normally be reached on 8:30-6 M-Th and 8:30-5 on Alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley Silverman can be reached on (571) 272-1358. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Paul Wartalowicz
April 18, 2006

COLLEEN P. COOKE
PRIMARY EXAMINER